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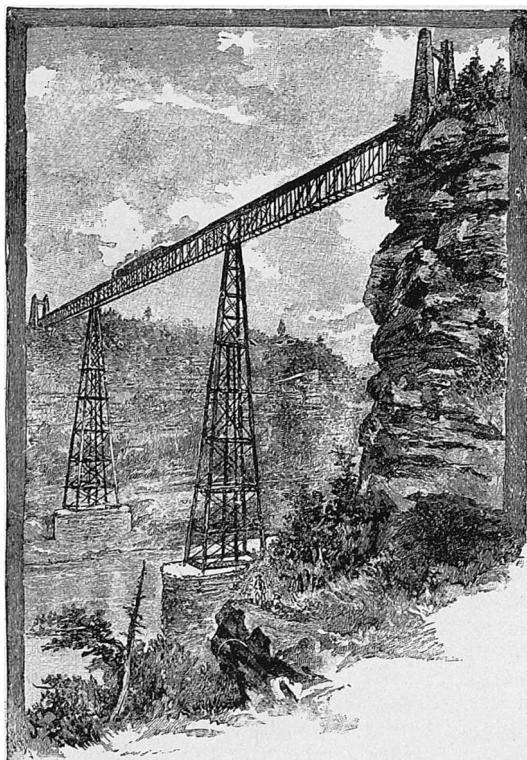
BRIDGE IN VALLEY OF ST. NICHOLAS, SWITZERLAND

## BRIDGES, ARTISTIC AND INARTISTIC (CONCLUDED)

Whatever be the form of construction, the prevailing fault in American bridges—and it is one that competent critics declare to be as needless in the steel age as in the stone—is the presumption of engineers in rejecting architectural principles and requirements. Mr. Russell Sturgis once made a pregnant suggestion to the American Society of Civil Engineers. He said that bridge-builders should concentrate their attention less on the question whether their work would stand than on the question whether it was fit to stand. When the time comes that American engineers recognize the truth of these words—when, in other words, they recognize that they owe to the public adequate reference to art in their work—we may hope to see fewer monstrosities in the way of American bridges, and more structures approximating in beauty the Old World bridges of antiquity and their modern successors.

Apropos of this deliberate renunciation of the æsthetic principles by American bridge-builders, and the crying need of a different régime, Montgomery Schuyler pertinently remarks: "Undoubtedly the desire for beauty, the desire for expression, is the root and starting-point of the matter. Until this is felt, no progress is possible.

And as among American engineers there are many who pay no attention to how their work looks, it might be expected, since 'man's philosophy is the supplement of his practice,' that there should be some to maintain that it does not matter how it looks. One such has declared in public that a bridge, being merely a 'tool of transportation,' is to be judged like any other tool by its efficiency, without reference to its appearance, 'without reference to art.'



KENTUCKY HIGH BRIDGE

scape or the disfigured city like a conquering savage. But the practice of the profession has been to treat its æsthetics, not so much with animosity as with contempt. 'Unless the artistic appearance of a structure is imposed as a necessary feature,' says one authority, 'it is rarely if ever considered by contractors.' And even when it is imposed, we have seen that there is nothing in the training of an American engineer, as an engineer, that enables him to supply it."

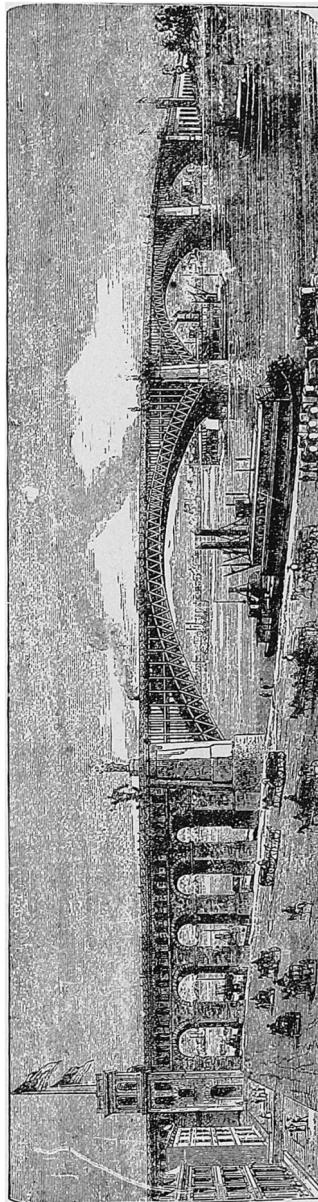
It is a principle, commonly accepted in theory, and as commonly

"To a stalwart vandal of this temper, a Gradgrind-Attila, discussions of the æsthetics of engineering naturally seem frivolous and vexatious. He might be expected to find a stern joy in shocking the weaklings who trouble themselves about such trifles, and when he had executed some especially revolting work, to paint it a triumphal red, and exult over the insulted land-

disregarded in practice, that, be it in the construction of a bridge, a building, or an article of ornament, the design, the primary form, is the essential element necessary for artistic effect. If this be ignored, no amount of decoration can make a beautiful result, any more than brilliant technique and fine coloring can make an acceptable picture out of a canvas characterized by faulty drawing and bad composition.

In the matter of bridge-building, it has been said with truth that a stone arch never lacks, and never can lack, grace and charm. It is equally true that if the abutments and supporting towers are properly constructed, the drooping curves of a suspension bridge rarely if ever offend the eye. On the other hand, the pivotal swing bridge or the straight truss bridge, no matter what be its construction, is bound to be an eyesore wherever it is erected.

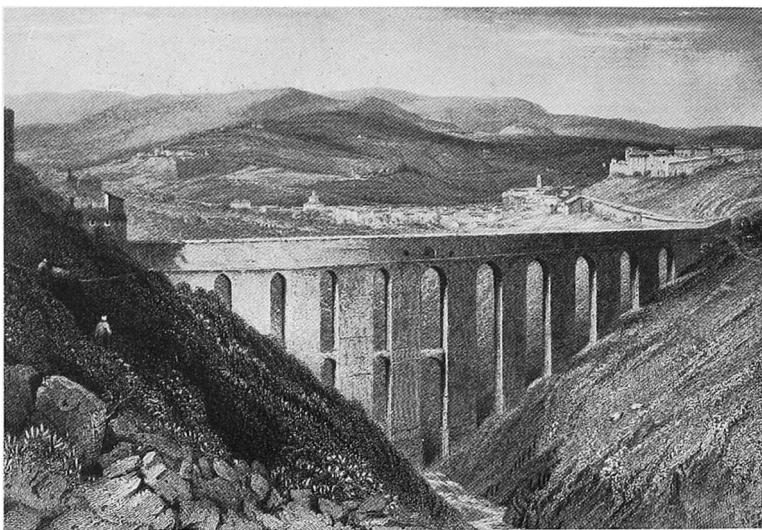
In confirmation of this, the Menai Strait furnishes two illustrations that have become proverbial as a warning against the disregard of artistic principles. Stephenson's Britannia tubular bridge is a monstrosity of ugliness for which the world has few bridges to offer in comparison, while Telford's suspension bridge over the same estuary to-day ranks among the beautiful bridges of the world. The conditions imposed upon the two engineers were not essentially different. The contractor whose sole interest is to furnish an effective means of transit will doubtless recognize Stephenson's bridge as the greater feat of engineering ability. The man, however, who likes to in-



BRIDGE OVER MISSISSIPPI RIVER AT ST. LOUIS

corporate an element of the beautiful in things purely utilitarian will pay homage to Telford.

One of the most notable successes in bridge-building in America is the great Washington bridge over the Harlem River, in New York, whose two steel arches cover a span of one thousand and twenty feet. The accompanying illustration will show the beauty that can be attained by a skillful modern engineer working with the new present-day material, steel—but studying fitness of construction with the same scrupulous care that was observed by the “rule of thumb” workers of



BRIDGE AT SPOLETO, ITALY

antiquity. This great public work is notable as an engineering feat pure and simple, and it becomes doubly notable when consideration is taken of the beauty of its lines, and the fact that, vast as are its proportions, it seems to fit naturally into the landscape. When artistic results can be and are attained under really adverse conditions, there seems to be little excuse for the minor abominations with which our cities and landscapes are disfigured.

In Chicago, for instance, there are something over fifty bridges crossing the narrow river that intersects the city, most of which are of the pivotal, swinging type. There is not a single line of beauty in the whole aggregation. The bridges are simply cumbersome make-shifts; the supporting piers on which they are poised are an obstruc-



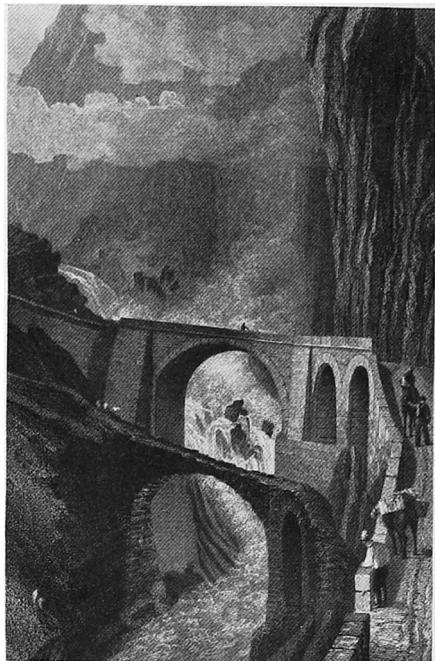
ORIENTAL RUG  
From "Rugs Oriental and Occidental"  
Copyright, 1901, by A. C. McClurg & Co

tion to navigation; they are merely tools for traffic, ungainly and an offense to the eye. One unsightly structure was erected and was found to subserve the purpose of transit, and soon the river was spanned from harbor to city limits with other eyesores, built after the pattern of the first, as nearly alike as peas in the pod, and all alike suggestive of the shop. They look as though they were designed by a foundryman, and erected to spite the very name of beauty.

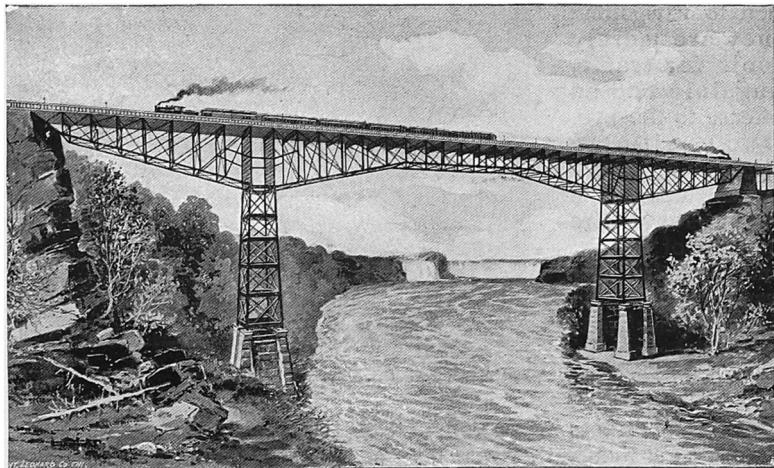
And so throughout the length and breadth of the country. Wherever nature has offered the fewest difficulties for a pleasing solution of the bridge question, man, with an utter disregard of taste and fitness, has spanned canal, river, and gorge with make-shifts of the baldest and most unattractive character. To cite a specific instance, no stream in the world offered better opportunity, in a small way, to bridge-builders for pleasing and varied treatment than the Erie canal, whose slender ribbon of water traverses the entire length of New York state. And yet, of the hundreds of bridges that cross the canal, there is not one that does not offend every prin-



POMARET BRIDGE, VAL ST. MARTIN



THE DEVIL'S BRIDGE, CANTON URI, SWITZERLAND



CANTILEVER BRIDGE OVER NIAGARA RIVER

inciple of beauty and canon of good taste. The structures are all of the baldest foundry-made type, one serving practically as the prototype of all.

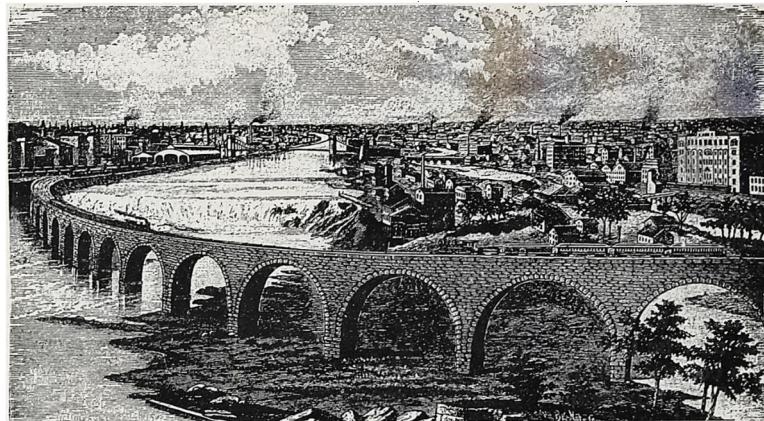
Had the state authorities done so much as to employ a competent engineer and an architect jointly to make a number of artistic designs, and then place the different styles supplied along the line of the canal where they would best fit into the landscape, the most admirable effects could have been obtained. As it is, cross-road, village, and city, from Albany to Buffalo, are disfigured by these horrors of economy, utility, and bad taste. The Empire State, that has spent millions on its capitol, seems to have relegated its minor interests to blacksmiths and foundrymen who have had no higher conception of public works than mere use.

It may be that a country must reach a certain age before æsthetic tastes are sufficiently developed for the populace to crave in public works what it craves in its homes. If so, it would seem that America has reached that point where consideration should be had of the æsthetic quality of such public utilities as bridges. That civic pride is false which demands public buildings costing millions, and is willing to brook under the eaves of these structures crude apologies for bridges that should be as artistic in their construction and as educational in their influence as the other public works of the municipality. It is false pride for a railroad corporation to grace a city with a million-dollar depot and erect within that city's limits an unsightly bridge structure that can be but a reproach to its perpetrator.

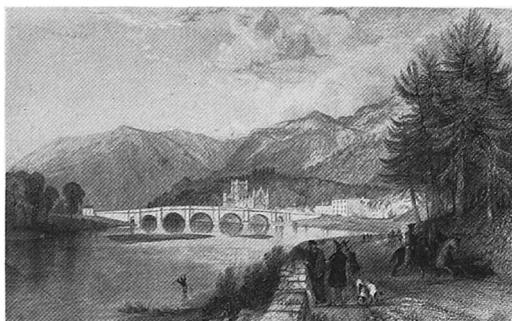
As a rule, the greater the enterprise the higher the order of talent engaged to carry it through, and the more requirements are imposed upon the men engaged to execute it. Minor matters are intrusted to minor men, and are often left to the tender graces of chance. The special evils of American bridge-building are absolute indifference to æsthetic qualities on the part of the builders in particular and the public in general, and a tendency to let novelty of construction or greatness of feat override every consideration of fitness and beauty. It seems to lie close to the American engineer's heart to produce a span a few feet wider than anything heretofore attempted; and the public, with foolish pride in such achievements, has usually abetted the enterprises. The smaller bridges, which should be as beautiful as any of the Old World's structures, have been signally overlooked.

In Europe, the present is as much an age of steel as in America, but, as we have seen, with the beautifnl bridges of antiquity before them as models, and with the taste that is fostered by the presence of these old structures, engineers and architects have sought to shape the new material on some such lines as were followed with the old. Steel is not intractable, and the efforts of the Old World bridge-builders of the present day have been eminently successful. On the other hand, with the same opportunities, the efforts of our bridge-builders have been for the most part deplorable.

When crusades are made, as they now are, to effect reforms in the interest of æstheticism by straightening the sky lines of our streets, by removing billboards and other obnoxious signs, and so forth, it is eminently fitting that a reform should be inaugurated in the matter of bridge-building. As with the removal of objectionable



STONE ARCH BRIDGE AT MINNEAPOLIS



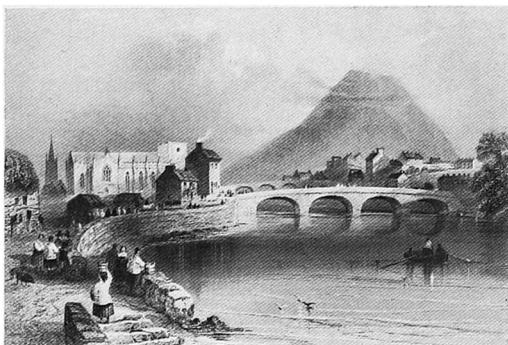
BRIDGE AT DUNKELD, PERTHSHIRE, SCOTLAND

its engineers and contractors conditions and requirements that will make the finished structures conform to the principles of beauty. In the mean time it is well to remember the words of Mr. Schuyler, and make provisions accordingly. He says:

"There are, of course, many questions arising in every engineering work—countless questions of detail and of degree—the answers to which make or mar its ultimate success, that are in fact appeals to artistic sensibility and tact—the tact that comes of artistic training. The mere desire for expression no more involves the power of expression in this art than in any other. In order to express a construction intelligibly, much more to express it with power and with grace, a course of special training is requisite, which, as we see all about us, is not involved in the education of an engineer. For this training no systematic or comprehensive provision is made in our technical schools.

"They manage these things better in France, where a professor of architecture is attached to the national department of engineering, with results that may be judged by a comparison of the Pont Mirabeau with the best of our own works of the

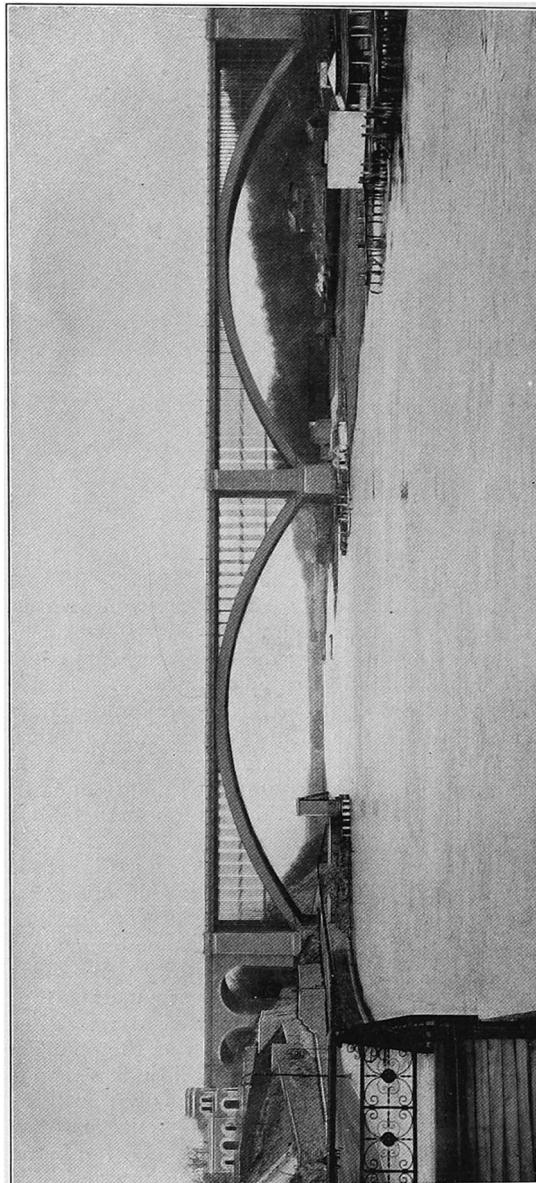
buildings, the removal of unsightly bridge structures will doubtless be a slow task. The evil done will endure for decades, since decay alone will probably condemn and banish the monstrosities now in existence. But every corporation or municipality proposing to erect bridges can at least impose on



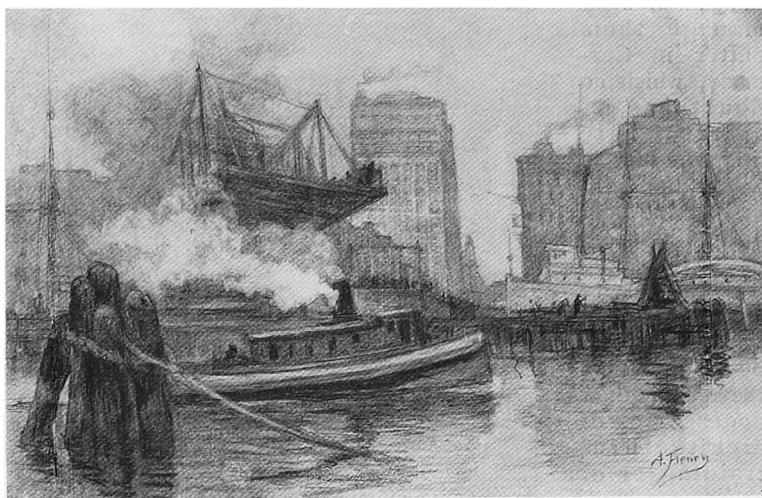
BATTINA BRIDGE, COUNTY MAYO, IRELAND

same kind. They manage them better in Germany, which no doubt has its share of ugly bridges, but in which the ugliness of the ugly bridges is more or less masked and the beauty of the beautiful bridges enhanced by the evidences they bear in their accessories of architectural training or of architectural co-operation. . . .

"Where 'the artistic appearance of a structure is imposed as a necessary feature,' the engineers are on their defense, and the signs multiply that they feel themselves to be so. It is for themselves to convert their new science into a new and glorious art, by reuniting, with the new methods and new material, the scientific building and the artistic building that since the Middle Ages



WASHINGTON BRIDGE, NEW YORK CITY, SPANNING THE HARLEM RIVER



STATE STREET BRIDGE, CHICAGO  
From a Drawing by A. Fleury

have been divorced." These are strong words, well worthy of consideration in any measure of reform that may be proposed.

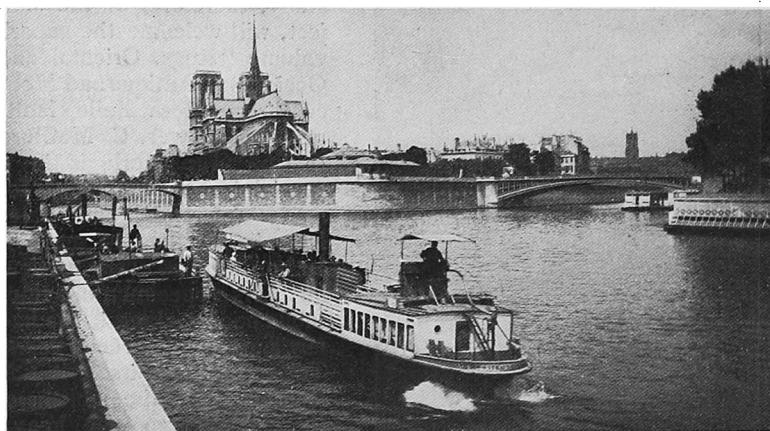
Mr. Schuyler is not the only acute critic of our public institutions and public works who deplores the absence of the necessary provisions for "reference to art," in theory and practice. There is certainly no lack of educational institutions in this country of the highest character, and it seems an unpardonable oversight on the part of the management of such institutions to let the purely practical or mechanical part of the instruction they impart so dominate as virtually to exclude æsthetics from consideration. And it is no less an unpardonable offense for the projectors of enterprises to impose upon the public at this time unsightly works of engineering that by proper care could be made to contribute to the beauty of city and country.

In pioneer days there might have been some excuse for suborning everything in the interest of utility pure and simple, but there certainly is no excuse now for perpetuating the crude makeshifts or blundering contrivances of earlier days. Most of the abuses from which the more cultured portion of the populace suffer are the direct outgrowth of negligence that is little less than criminal.

America has taught Europe many things, but it has many things yet to learn from Europe. And in the matter of bridge-building, the sooner we adopt Old World methods the better, making æsthetics a necessary part of engineering training, and insistence on the incorpo-

ration of beauty in public works a matter of universal practice. Until this is done we can reasonably expect no change for the better. An awakened æsthetic sense—and perhaps an awakened conscience—are prime requisites in the matter. Since the foregoing was written it is reported that Kaiser Wilhelm has rejected the plans for two bridges designed to be erected in Berlin, on the ground that they were not artistic. The Kaiser's position is logical and good. He wishes to make Berlin a beautiful city, and properly begins by putting his ban on unbeautiful objects. It would be well if our own powers that be would adopt a similar policy.

HENRY T. WOODBRIDGE.



NOTRE DAME AND THE SEINE

Successful Solution of River and Bridge Treatment for a Large City